

CHINA IN THE OIL AND GAS BRANCH OF TURKMENISTAN

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ABSTRACT

In the 1990s, China showed practically no interest in Turkmen oil and gas. It developed this interest in the middle of the first decade of the twenty-first century and has been widening it ever since. In three years (2006-2009), Beijing built up its presence in Turkmenistan and, after the agreements of September 2013, became an uncontested leader in the Turkmen oil and gas industry.

KEYWORDS: *China, Turkmenistan, Xi Jinping, oil and gas industry, CNPC, the South Iolotan gas fields, Osman, Yashlar and Minara, the Galkynysh project, the Bagtiyarlyk territory, Turkmengaz State Concern, Gazprom, the Seydi Refinery, the Turkmenistan-China gas pipeline, the TAPI gas pipeline, the Nabucco gas pipeline.*

Introduction

Until the middle of the first decade of the twenty-first century, China and Chinese companies displayed no interest in Turkmenistan, its energy sector, or its oil and gas, despite China's rapidly increasing demand for energy resources and the fact that the two countries established diplomatic relations on 6 January, 1992 (immediately after the Soviet Union's demise). This was largely explained by the distances separating the two countries and the poorly developed transportation infrastructure.

This also explains the poorly developed bilateral trade which, until 2006, remained practically unnoticed in the tiny volume of the Turkmen economy. Indeed, between 1992 and 2006, the volume of its bilateral trade with China never went beyond \$125 million, or 1.8% of the republic's total trade turnover.

In the latter half of the first decade of the twenty-first century, China began demonstrating much more political and economic interest in Turkmenistan and developed a strategic interest in its gas reserves. In April 2006, during President Niyazov's visit to China, the sides signed seven bilateral documents, the main being an agreement between the Ministry of Oil, Gas and Mineral Resources of

Turkmenistan and the Chinese National Petroleum Corporation (CNPC) on cooperation in the oil and gas sphere.

It should be said that Beijing's interest in the gas resources of Turkmenistan coincided with Ashgabad's intention to diversify its foreign economic ties in many fields, including oil and gas. For a long time, the republic had been trying to decrease its pipeline dependence on Russia, that is, Gazprom, to build a more balanced economy and decrease its dependence on the raw materials sector. It seems that the coinciding strategic interests and the bilateral agreement in the oil and gas sphere invigorated China's interest in Turkmenistan and extended it from the oil and gas sector into other branches of primary importance for Ashgabad.

Table 1

Trade between China and Turkmenistan (1997-2014)

Year	Trade Turnover, \$m	Supplies from China to Turkmenistan, \$m	Supplies from Turkmenistan to China, \$m
1997	19	—	—
1998	24	—	—
1999	29	22	7
2000	37	26	11
2001	47	—	—
2002	91	88	3
2003	122 (100)	103	19
2004	117 (102)	100	17
2005	105 (114)	89	16
2006	125 (133)	107	18
2007	377 (400)	314	63
2008	663 (680)	568	95
2009	1,652, (1,700)	1,472	180
2010	1,566, (1,650)	1,040	526
2011	2,350, (2,460)	1,440	910
2012	3,980, (4,000)	1,450	2,530
2013	4,225, (4,800)	1,680	2,545
2014	4,895, (5,000)	2,245	2,650

Sources: The figures for 1992-2001—the Asian Development Bank (ADB) with reference to the national boards of statistics of Turkmenistan; the figures for 2002-2012—*The Economist Intelligence Unit* with reference to the national boards of statistics of Turkmenistan; the bracketed figures for 2003-2014 were supplied by the Ministry of Commerce of the People's Republic of China.

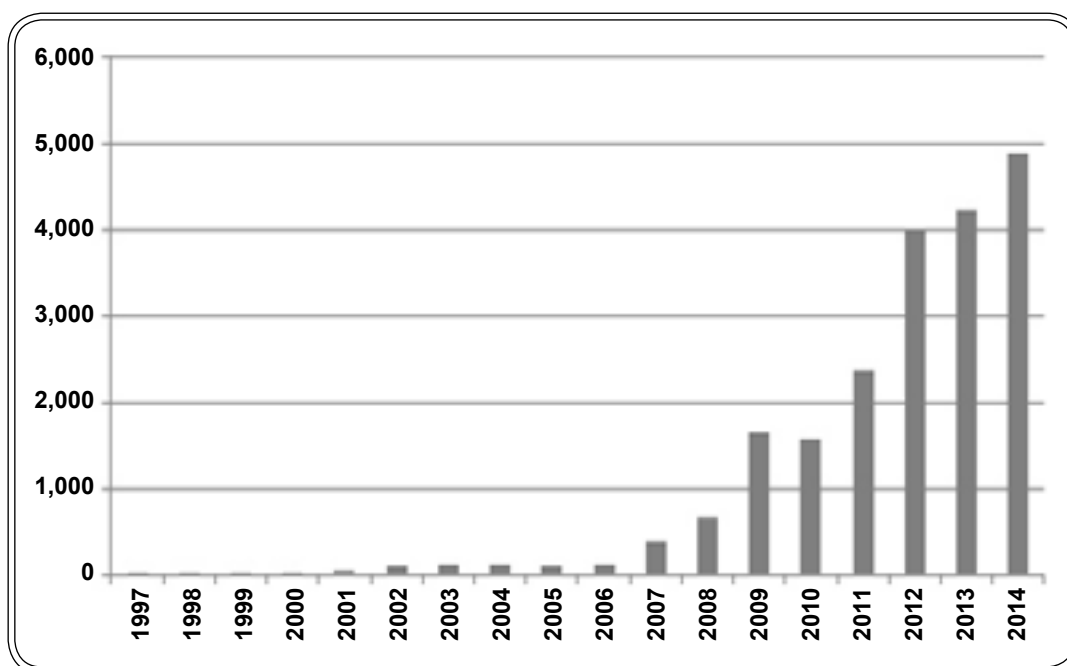
Bilateral trade has been gaining momentum: in 2007, trade turnover between the two countries increased 3-fold: from \$125 million in 2006 to \$377 million in 2007. In 2008, trade turnover rose by

76% to achieve a figure of \$663 million. In 2009, trade volume rose 2.5-fold against the previous year to reach \$1.6 billion. In 2010-2014, Chinese-Turkmen trade turnover increased over 3-fold to come close to \$4.9 billion in 2014 (see Table 1).

The diagram offers a much more graphic picture of China-Turkmenistan trade dynamics in the post-Soviet period (see Diagram 1).

Diagram 1

Trade between China and Turkmenistan
(1997-2014, \$m)



China's interest in Turkmen gas (the reserves of which are fairly large) explains the rapid intensification of the two countries' bilateral trade. Moreover, Turkmenistan is the only post-Soviet country with a high export potential: it can afford to export over three quarters of the gas it produces.

Turkmenistan assesses its gas reserves at 25-50 trillion cu m; seen from abroad this looks like an overestimation. The International Energy Agency, British Petroleum, etc. talk about 3 to 4 trillion cu m of proven gas reserves, not counting the discovered in the post-Soviet period (in 2006-2009) and still unexplored South Iolotan, Osman, Yashlar, and Minara gas fields, on which Turkmenistan pins its hopes. Their volumes are still unknown (they have been developing since 2011 within the Galkynysh project), although according to Turkmen sources, they are considerable—from 18 to 26 trillion cu m.

Even if Ashgabad deliberately overestimates its gas resources, it can export a larger share of the gas it produces—its population is small (slightly over 5 million), large-scale industry is limited to the oil and gas sector, and the heating season is short—which attracts China and its companies to the Turkmen market.

This was fully confirmed in September 2013 when, during PRC Chairman Xi Jinping's visit to Turkmenistan, the sides reached several fundamentally important agreements on China's greater presence in Turkmenistan's oil and gas sphere. The sides signed a set of bilateral documents on

wider cooperation between the Peoples' Republic of China and Turkmenistan, mainly in the gas sector, related to the development of the most promising gas fields, the construction of gas-processing facilities, and the extension of the gas transportation system toward China.

So far China is not interested in Turkmen oil and the country's oil export potential, nor will it acquire this interest any time soon: the oil reserves are moderate and, therefore, not enticing. Turkmenistan insists on 15 to 20 billion tons of oil reserves, which is probably a gross exaggeration. The figures supplied by independent international structures and companies (the International Energy Agency, British Petroleum, etc.)—from 200 to 400 million tons—look more plausible. Whatever the case, Turkmenistan cannot supply China with adequate volumes of oil: it exports several million tons a year; the exported volumes are steadily decreasing because the country tends to refine the steadily growing amounts of oil at home. In short, China has no interest in Turkmenistan's oil sector.

China and its companies are actively involved in the gas segment. Since 2007, the CNPC has been developing several gas-related projects; it is involved in building gas-processing plants and laying the Turkmenistan-China main gas pipeline designed to ensure considerable and long-term supplies of Turkmen gas to China.

Oil and Gas Production

The specifics of the Chinese projects being implemented in Turkmenistan confirm that China has come to the country to concentrate on gas production and that the insignificant oil reserves hold no interest for it.

This explains Beijing's very logical policy of securing for itself as large amounts of Turkmen gas as possible, as well as the two very logical schemes it uses in a country that does not trade in its oil and gas assets. China provides loans for production projects (which are repaid by means of gas exports to China) and the CNPC's steadily increasing involvement in Production Sharing Agreements (PSA).

- *First*, after beginning commercial production of gas in late 2009, in 2010, China produced 8.7 bcm of gas; in 2011, 12 bcm; in 2012, 13 bcm; and in 2014, about 24 bcm, or about 30% of the total amount of gas produced in Turkmenistan (80 bcm).

So far, China has been and remains indifferent to Turkmen oil: the CNPC shows no interest in oil production. On the one hand, the local recoverable oil reserves on the continent and offshore are too small to merit attention. On the other, Ashgabad is steadily cutting back on the volumes of exported crude oil and increasing oil refining inside the country. This is explained by the fact that Turkmenistan (unlike Kazakhstan) has enough facilities to refine the total volume of oil produced in its territory. There is no oil pipeline infrastructure between the two countries, while moving the very limited volumes of oil by rail across Uzbekistan and Kazakhstan is hardly profitable. This means that China will not develop an interest in Turkmen oil, at least not any time soon.

- *Second*, China's policy aimed at a steadily growing volume of gas production in Turkmenistan is affected by different or even contradictory factors. On the one hand, China's desire to increase its share in gas production in Turkmenistan is limited by the state policy of Turkmenistan, which prefers to remain in control of its oil and gas sphere, the country's main source of money. On the other, Ashgabad meets China, willing to increase its share in gas production, half-way by willingly reserving considerable volumes of gas to settle China's loans; it as willingly enters into PSA with the CNPC.

This means that in the absence of competition in the gas sector of Turkmenistan and its very limited possibilities to diversify its gas export China is increasing gas production volumes and reserving the steadily growing amounts of gas delivered to its territory.

- *Third*, in the future, too, China will probably retain its high profile in the gas sector of Turkmenistan and in the short (up to 3 years) and mid-term (up to 10 years), it will remain willing to increase gas production in Turkmenistan. Amid the deepening world financial and economic crisis and the low gas prices, China will demonstrate even more determination to invest in new projects. Consistent gas supplies are of fundamental importance for the Chinese economy, which is gradually replacing coal in its energy balance with gas. This means that Beijing will be guided by strategic rather than commercial interests. In the short and mid-term, Turkmenistan stands a good chance of remaining the largest supplier of natural gas to China. Russia, another possible supplier of large amounts of gas, is so far unwilling to sell its gas on China's conditions. The much cooler relations between Moscow, on the one hand, and the U.S. and Brussels, on the other, in the latter half of 2014 onwards, the Western sanctions, the lower hydrocarbon prices, and the weaker ruble will probably force Russia to retreat on the gas price issue.

In 2015, the share of China in gas production in Turkmenistan will increase and continue to grow due to the unfolding gas deliveries from the newly commissioned South Iolotan, Osman, Yashlar and Minara (the Galkynysh project) developed with the help of the CNPC. It is expected, and with good reason, that they will produce from 25 bcm to 30 bcm of gas every year, which will be moved to China to pay off the loans that made the Galkynysh project possible. When completed, the project's second stage is expected to produce 60 bcm of gas a year.

This means that in the short term the Chinese companies operating in Turkmenistan (within the Galkynysh project and in the Bagtiyarlyk territory) will probably produce about 40 bcm of gas every year (which is equal to the total capacity of the first and second lines of the Turkmenistan-China main pipeline). According to official information, which comes from Turkmenistan, Beijing plans to reach these gas production/export to China figures in 2016.

It is hard to say today how much gas China will produce in Turkmenistan in the mid-term (up to 10 years) and long term (up to 20 years). The official figures of gas reserves of South Iolotan, Osman, Yashlar, and Minara look grossly exaggerated. On the other hand, Turkmenistan has officially announced that by 2021 Beijing expects to reach an annual figure of 65 bcm of gas produced/exported to China (the total capacity of the first, second, and third lines of the Turkmenistan-China pipeline).

On the other hand, local oil will not interest China either in the short, mid-, or long term. Turkmenistan will refine locally produced oil itself, while oil export from the country will either be discontinued or drop to insignificant volumes. There is no reason to expect a more or less considerable increase of oil production in Turkmenistan. Several European and Asian companies engaged in oil prospecting in the Turkmen sector of the Caspian offshore have not yet come back with promising results.

Refining Oil and Gas

China is involved in hydrocarbon refinery in Turkmenistan on a large scale, which looks impressive since no other states or companies are involved in refining projects. On the other hand,

China has limited its activity to reaching the tank gas stage needed for export, as well as to refining small amounts of Afghan oil at the Seydi Refinery.

- *First*, China's involvement in hydrocarbon refinery in Turkmenistan is part of Beijing's strategy in the country, viz. large and steadily growing volumes of gas production and export to China.

China is helping to develop gas fields, has opened a credit line within the Galkynysh project, and is steadily moving into gas processing:

—In 2007-2009, the CNPC built a gas processing plant with an annual capacity of 5 bcm in the Batiyarlyk territory;

—In 2011-2014, the Chinese company added another gas processing facility in the same territory of an annual capacity of 9 bcm;

—In September 2013, the State Concern Turkmengaz and the CNPC signed an agreement in R&D and construction of a plant near South Iolotan with an annual capacity of 30 bcm (construction began in May 2014).

- *Second*, China's active involvement in gas processing in Turkmenistan means that it has come to stay: Beijing plans to build more large gas processing plants in Turkmenistan, very much in line with Ashghabad's intentions to increase gas production. In view of the partners' identical long-term interests—both want to produce, process and export to China the maximally large volumes of gas—China will continue building gas processing facilities in Turkmenistan.
- *Third*, it seems that in the future China will not go beyond the tank gas stage.

In the short (up to 3 years) and mid-term (up to 10 years), Chinese companies will be steadily increasing the volumes of gas processed in Turkmenistan. This is confirmed by China's plans related to gas exports. In 2016, the volumes of Turkmen gas export to China will grow more than 1.6-fold: from 24 bcm in 2014 to 40 bcm. As mentioned above, in 2021, the planned annual volumes of Turkmen gas exports to China will reach 65 bcm, the plans based on the huge volumes of gas produced within the Galkynysh project and in the Bagtiyarlyk territory. At the first stage (2014-2016), Turkmengaz will supply from 17 to 27 bcm of tank gas exported along the Turkmenistan-China pipeline.

In any case, the present gas processing facilities in Turkmenistan will not be able to cope with the expected annual amounts of 65 bcm. Today, two gas processing plants, which the CNPC built in Turkmenistan in the Bagtiyarlyk territory, process 14 bcm of gas every year; the plant in the South Iolotan territory (within the Galkynysh project), which is still being built, will bring the combined annual processing capacity up to 44 bcm. China should not only accelerate construction of one more gas processing plant with an annual capacity of 30 bcm (the second stage of the Galkynysh project), but also start planning more gas processing plants to be able to process the required 65 bcm of contracted gas to end its dependence on Turkmengaz.

The fourth line of the Turkmenistan-China pipeline, which is still being laid (annual capacity of 30 bcm), will increase China's need for gas processing. It seems that the pipeline agreements between the two countries include certain plans for tank gas production. If the gas reserves currently developed within the Galkynysh project turn out to be large and fairly close to Ashghabad's assessments, China and Turkmenistan will start talking about the fifth line of the same pipeline.

Long-term (up to 20 years) prospects remain dim: the volumes will depend on China's need and Turkmenistan's real gas reserves and volumes of gas production.

It seems that in the future, too, China will not be interested in local oil: on the one hand, Chinese companies will not build new oil refineries in Turkmenistan which, unlike Kazakhstan, has not

enough crude oil to load all oil refineries now operating on its territory. On the other, Ashgabad will hardly sell its oil refineries to any other country, including China: it needs them as the second (after gas exports) largest source of income: it exports oil products (petrol, kerosene and diesel fuel).

China's contribution to oil refinery in Turkmenistan will be probably limited to selling it, on credit, oil refining equipment.

Transportation of Oil and Gas

Beijing's plans to build and service the gas pipeline infrastructure in Turkmenistan are obviously long-term; it is seeking the largest volumes of gas export and domination of, if not monopoly on, the Turkmen gas market. Suffice it to mention its consistent efforts to increase the carrying capacity of the Turkmenistan-China gas pipeline: while construction of the third line is being hastily completed, an agreement on the fourth line has been already signed.

It seems that the fourth line of the Turkmenistan-China gas pipeline should be interpreted not only as China's desire to buy practically all the gas Turkmenistan is ready to export, but also as Beijing's strategic plans to radically strengthen its economic/energy and, hence, political position in Uzbekistan, Tajikistan, and Kyrgyzstan. Turkmen gas will probably play a very special role in these plans.

- *First*, China's involvement in pipeline construction, which we have been observing since 2007, is significant and adequate to its involvement in developing the gas fields and building gas processing plants in close proximity to gas fields.

Between 2007 and 2011, China invested in two lines of the Turkmenistan-China gas pipeline with a total annual capacity of 40 bcm. It was expected that the third line of the same pipeline with an annual capacity of 25 bcm would be commissioned in the first half of 2015. In September 2013 the two countries signed an agreement on the fourth line which would by-pass Kazakhstan and cross Uzbekistan, Tajikistan and Kyrgyzstan, its expected annual capacity being 30 bcm.

The CNPC is paying for certain extra elements of the gas pipeline system (local gas pipelines) to increase the volumes of gas sent into the main pipeline from the gas fields in the east (the Bagtiyarlyk territory) and southeast (the Galkynysh project) of Turkmenistan.

- *Second*, the gas transportation system is an important part of China's gas strategy for ensuring a long-term and consistent inflow of imported gas into the country. In view of the fact that Turkmenistan is China's biggest gas supplier (and will probably remain such at least in the mid-term), China will have to concentrate on the construction and development of the gas pipeline system in Turkmenistan and the region as a whole.

The planned fourth line of the Turkmenistan-China gas pipeline will help Beijing ensure its gas-related and strategic interests in Central Asia. The fourth line will allow China to address three important tasks.

First, and probably most important: it will increase the annual volumes of imported Turkmen gas from 65 to 90 bcm, or the lion's share of Turkmenistan's gas exports. This will reduce to naught possible rivaling projects to move gas to South Asia and Europe. Second, gas supplies from Turkmenistan will be diversified: the fourth line will bypass Kazakhstan overloaded with pipeline infrastructure. Third, and no less important: the gas moved across Kyrgyzstan and Tajikistan will heat these countries in winter and create certain prerequisites for resolving a problem that causes a lot of anguish in the region and is acutely felt in Kyrgyzstan, Tajikistan, and Uzbekistan. It will help to restore the Soviet

water and energy exchange scheme, this time under Chinese, not Russian, arbitration. Beijing will acquire powerful pressure levers on Bishkek, Dushanbe, and Tashkent and much greater local support of its initiatives in Central Asia.

- *Third*, in the short term (up to 3 years), China will bring the annual carrying capacity of the Turkmenistan-China gas pipeline up to 65 bcm: Turkmenistan has enough gas to increase the exported volumes even if it turns out that its gas reserves were deliberately overestimated.

During the last Soviet years, Turkmenistan produced about 90 bcm of gas every year and exported, on average, about 65 billion. Today, with the proven gas reserves being two times bigger than the 1990 level, Turkmenistan can double the volume of production/export: from 90/65 to 180/130 bcm a year.

This looks more optimistic than what the International Energy Agency says about the Turkmen gas reserves. It forecasts that by 2025 Turkmenistan will produce about 140 bcm of gas a year and will export about 100 billion. The two forecasts, however, do not contradict one another: either of them promises stable annual gas supplies to China of no less than 65 bcm, both in the mid- (up to 10 years) and long term (up to 20 years). This will be enough to load the three lines of the Turkmenistan-China pipeline to capacity.

Turkmenistan sells its gas to Iran (from 8 to 16 bcm every year) and to Russia (from 8 to 9 bcm), but China will remain the largest consumer of Turkmen gas in the short and probably the mid-term, and, what is more, not be a rival either to Iran or Russia. Both countries have huge gas reserves; they can easily cover their domestic needs, so they do not need huge amounts of Turkmen gas.

There are no other buyers of Turkmen gas on the horizon, either in mid- or long term. For several reasons, no large-scale projects—either the TAPI (Turkmenistan-Afghanistan-Pakistan-India) or Nabucco gas pipelines—are likely to be implemented in the near future.

In fact, the fourth line of the Turkmenistan-China gas pipeline deprives TAPI and Nabucco of their hitherto slim chances of being built. The four lines of the pipeline to China and the export obligations to Russia and Iran will leave Turkmenistan no exportable volumes of gas.

On the other hand, it remains to be seen whether China will go on buying 65 bcm of gas or even 95 bcm every year in the long term, after the fourth line has been commissioned. It is still unclear how much imported gas China will need in the future. Today, it is trying to cut down the high share of coal (over 70%) in its energy balance by switching to imported gas.

Its needs for imported gas are steadily growing, a trend that will continue in the short and mid-term. It, however, might disappear in the long term: China is implementing its ambitious atomic- and hydro-power projects to fully satisfy domestic demands for cheaper energy.

Production of Oil and Gas Equipment

In the first decade of the twenty-first century, China and Turkmenistan, probably on the initiative of Ashgabad, were planning to start production of certain types of Chinese oil equipment in Turkmenistan (in the city of Balkanabat). The project was not realized probably because Turkmenistan was not ready to develop machine-building and because China did not need oil-and-gas related production capacities in Turkmenistan. Joint projects in this sphere might be revived, probably in the mid-term.

- *First*, the issue was repeatedly discussed and remained on the joint agenda. The country's needs for oil and gas equipment are steadily increasing, which means that Ashgabad, with

no experience of its own, will insist on attracting Chinese technologies and money. In fact, China looks like the only logical option.

- *Second*, the plans to start production of oil and gas equipment are stalling because Turkmenistan has no adequately trained engineers, managers, or skilled workers: in Soviet times the republic had no oil and gas machine-building.

The failure of the Balkanabat project is partly explained by the fact that China is not interested in industrialization of Turkmenistan. It is also possible that China wants Turkmenistan to be fully dependent in terms of technology on its producers.

- *Third*, Turkmenistan, however, stands a good chance of acquiring oil and gas machine-building with Chinese assistance. China has come to stay in the gas sector of Turkmenistan, which gives Ashghabad a chance to promote its requirements. If construction of the fourth line of the Turkmenistan-China pipeline begins, Beijing will need additional guarantees of stable gas deliveries. This means that Ashghabad might include a clause in the agreement on the financial and technological involvement of China or Chinese companies in the development of oil and gas machine-building in Turkmenistan.

Conclusion

Despite the fairly impressive Chinese presence in the oil and gas sector of Turkmenistan, China has limited it to the development of gas fields, gas production and processing, and gas pipelines.

- *First*, China controls at least 30% of the gas produced in Turkmenistan with the greatest involvement, compared with other external players, in production, processing (dehydration and sweetening of natural gas to the stage of tank gas), and the construction/exploitation of gas pipelines.

China is consolidating its position in Turkmenistan by means of large-scale financing of future amounts of supplied gas, as well as designing of and investing in gas production, processing and transportation. The scope of China's presence will probably increase: it intends to move to the gas fields in the country's east and southeast, which look most promising from Ashghabad's perspective.

At the same time, China, or other players for that matter, has no and does not seek a prominent position in oil production and transportation; its position in oil refining is weak for the simple reason that the oil reserves of Turkmenistan hold no impressive export promises. China's presence in the oil segment is limited to the Seydi oil refinery where the CNPC refines the oil it produces in Afghanistan. As soon as the oil refinery now being built in Afghanistan has been commissioned (2016 being the expected date), the Chinese company will abandon the Seydi refinery. The CNPC might refine some of Afghan oil in Uzbekistan, the oil refineries of which are underloaded.

- *Second*, the scope of China's presence in the Turkmen oil and gas industry is wide enough: China controls over one quarter of gas production and has accumulated no less than two-thirds of foreign investments. China's presence is one-sided and limited to gas production and export, which reduces the Turkmen oil and gas industry and the country's economy to a raw-material status. So far, there are no signs that China will contribute to advanced processing of hydrocarbons in Turkmenistan to arrive at products of oil and gas refinery with a high rate of added value.

So far, China is mostly concerned about exporting the largest possible volumes of gas. It is lending to other spheres of the Turkmen economy on a grand scale in the hope of returning its money in gas supplies. Since the country does not trade in its oil and gas assets, China is actively buying the products of the oil and gas branch: the CNPC is actively involved in geological prospecting and development of newly discovered gas fields on a PSA basis.

Ashghabad, which needs Chinese investments, is satisfied with this state of affairs; today China is the only country ready to offer large loans and large-scale investments.

- Third, nothing much will change in the oil and gas branch of Turkmenistan in the short (up to 3 years) and mid-term (up to 10 years), however its scope will steadily grow. In 2015-2016, Turkmenistan will move up to supplying China with 40 bcm of gas every year, that is, the combined carrying capacities of two lines of the main gas pipeline. Starting in 2021 and in the mid-term, Turkmenistan will probably supply China with 65 bcm (the carrying capacity of three lines of the Turkmenistan-China pipeline). The third line will probably be commissioned in 2015, which means that starting in 2016 Turkmenistan will be able to export 65 bcm of gas (the total carrying capacity of the three lines) every year. These volumes, however, will not be moved before 2021, which means that there are not enough gas processing capacities in Turkmenistan to produce the necessary amounts of tank gas.

It is hard to forecast the nature and scope of China's presence in the oil and gas sector of Turkmenistan in the long term (up to 20 years). Much will depend on the required volumes of Turkmen gas. Theoretically, the commissioned fourth line of the Turkmenistan-China gas pipeline (with a carrying capacity of 30 bcm a year) will bring its annual carrying capacity up to 95 bcm of gas; in practice, however, the volumes might be smaller or larger.

On the whole, the changing and unpredictable dynamics of the economic/energy situation in China, Russia, and Europe, as well as in the rest of the world for that matter, make it hard to correctly assess the long-term perspective for gas supplies from Turkmenistan to China.